

3) If $f(x) = \begin{cases} 2x+1, & x \leq 2 \\ \frac{1}{2}x^2 + k, & x > 2 \end{cases}$ For what value of k is f(x) continuous?

4) If $f(x) = \begin{cases} 8k+x, & x \geq 4 \\ kx^2, & x < 4 \end{cases}$ For what value of k is f(x) continuous?

5) Given the function: $f(x) = \begin{cases} \sin 2x, & (x \leq \pi) \\ 2x + k, & (x > \pi) \end{cases}$ What value of k will make this piecewise function continuous?

6) The $\lim_{x \rightarrow c} f(x) = 7$ and $\lim_{x \rightarrow c} g(x) = 14$ find:

a) $\lim_{x \rightarrow c} (g(x)f(x)) = ?$

b) $\lim_{x \rightarrow c} \frac{g(x)}{f(x)} = ?$